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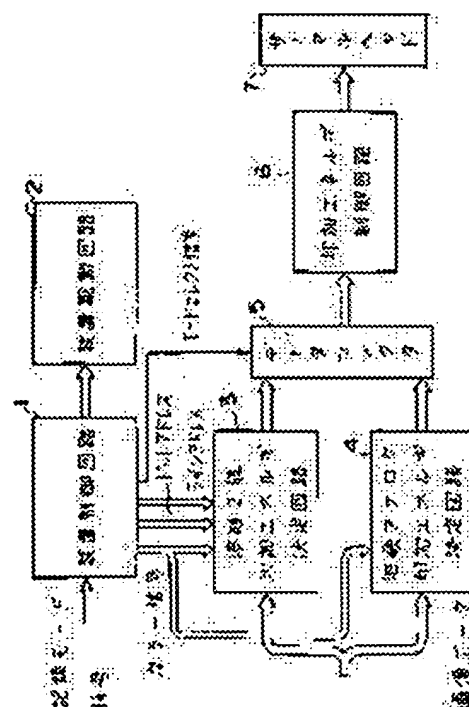
TOYAMA EIICHI

(54) IMAGE RECORDING DEVICE

(57)Abstract:

PURPOSE: To provide an energy recording device outputting an image in which gloss and mat are mixed together.

CONSTITUTION: First, the output from a molten analog applying energy decision circuit 4 is selected by a data selector 5 in a device control circuit 1, and a mat image is formed by inputting the selected output into an energy applying control circuit 6, controlling the generation of respective thermal elements of a thermal head 7 and recording by means of molten analog ink. Then, a mode select signal is changed over and the output from a molten binary applying energy decision circuit 3 is selected as applying energy, and recording is performed by white or colorless transparent molten binary ink and gloss is imparted selectively to optional sections.



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CLAIMS

[Claim(s)]

[Claim 1] Image recording equipment characterized by establishing a means to output a gloss image to said detail paper corresponding to the gloss image information contained in image data after recording said mat image in the image recording equipment which outputs a mat image to the detail paper according to the inputted image data.

[Claim 2] The device control circuit which outputs the signal which inputs a recording-mode signal and controls actuation of image recording equipment, The drive circuit which performs the drive of the recording paper or a record medium with the driving signal from this device control circuit, The mat record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal from image data and this control circuit, and performing mat record, The gloss record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal and the address from said image data and said control circuit, and performing gloss record, The data selector which chooses the impression energy signal from said mat record energy decision circuit or said gloss record energy decision circuit with the mode selection signal from said control circuit chosen by the class of said record medium, Image recording equipment characterized by having the impression energy control circuit which inputs this impression energy signal and outputs impression energy, and the head which consists of two or more components constituted in the shape of [which uses said record medium for said recording paper by this impression energy, and is recorded] Rhine.

[Claim 3] The device control circuit which outputs the signal which inputs a recording-mode signal and controls actuation of image recording equipment, The drive circuit which performs the drive of the recording paper or a record medium with the driving signal from this device control circuit, The mat record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal from image data and this control circuit, and performing mat record, The gloss record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal and the address from said image data and said control circuit, and performing gloss record, The data selector which chooses the impression energy signal from said mat record energy decision circuit or said gloss record energy decision circuit with the mode selection signal from said control circuit chosen by the class of said record medium, The impression energy control circuit which inputs this impression energy signal and outputs impression energy, It has the head which consists of two or more components constituted in the shape of [which uses said record medium for said recording paper by this impression energy, and is recorded] Rhine. Image recording equipment characterized by being the band material which carries out this ink maintenance with the colorlessness or white transparency ink in which some or all of said record medium fuses heating, and an imprint side consists of a solid-state-like component which is smooth and has gloss.

[Claim 4] Said ink is image recording equipment according to claim 3 characterized by being a solid-state in ordinary temperature and being the cementitious material liquefied with heating.

[Claim 5] It is image recording equipment according to claim 3 which said ink is a solid-state in ordinary temperature, is a cementitious material liquefied with heating, and is characterized by said head being an ink jet mold.

[Claim 6] It is image recording equipment according to claim 3 which said ink is a solid-state in ordinary temperature, is a cementitious material liquefied with heating, and is characterized by said head being a thermal head mold.

[Claim 7] The ink film for thermal ink transfer printing characterized by applying the ink of a class in which plurality differed on one continuous film in the sequential transit direction.

[Claim 8] The ink of a class in which said plurality differed is an ink film for thermal ink transfer printing according to claim 7 characterized by being melting analog ink and melting binary ink.

[Claim 9] Said melting binary ink is an ink film for thermal ink transfer printing according to claim 8 characterized by being a solid-state in ordinary temperature and being the colorlessness or white transparency binder liquefied with

heating.

[Claim 10] The image processing system characterized by establishing the means which inputs or creates the image data which consists of what added color information to concentration information, brightness information, or said information, and carries out an image processing to it including gloss image information in various image processings and the image processing system which is edited and is outputted to an image display device or image recording equipment as said a part of image data in addition to said various information.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the image output unit which outputs the image which made mat and a gloss part intermingled.

[0002]

[Description of the Prior Art] There are various kinds of types of image output units, and the gloss properties of the record image obtained for every type of the differ. Especially the image obtained by the thermal-ink-transfer-printing recording method using melting analog ink or the ink jet recording method is mat, and since it can take out texture, such as cloth, it fits the output of the computer design in dress and ornaments or the construction field. On the other hand, since there is cloth which has gloss, such as a silk, and the construction field also has a mirror, glass, a metal part, etc., the dress-and-ornaments field requires making a mat part and a gloss part intermingled in the same image in fact. Moreover, the expression range becomes large when the computer graphics (CG) field also makes mat and gloss intermingled.

[0003] As an image output unit which outputs the image which made such mat and gloss intermingled, for example like the publication to JP,1-12525,A, record of both melting analog ink and melting binary ink is enabled with one equipment, and the thermal-ink-transfer-printing recording device which can perform said two kinds of records in the same record paper is proposed. Moreover, the method which loses surface scattered reflection and obtains a gloss image is proposed like the publication to JP,2-14912,B by fixing a laminate film on a recording paper front face after image recording.

[0004]

[Problem(s) to be Solved by the Invention] However, in order that record in melting binary ink may change concentration and may express gradation with the area gradation by the set of a binary dot, compared with record of the melting analog ink in which concentration control is possible, halftone cannot set it up easily for every dot, and it is large. [of the difference of the image quality by the difference in a gradation expression method] Therefore, image quality differs more than the existence of gloss, and the image which made record of melting binary ink and melting analog ink intermingled turns into an unnatural image.

[0005] In addition, two kinds of ink films or the ink film cassette of mat and gloss is prepared, and there is complicatedness exchanged in the middle of record.

[0006] Moreover, it is impossible to add gloss alternatively to some images by the method which fixes the latter laminate film.

[0007] Furthermore, the image processing system which can process gloss information does not exist conventionally.

[0008] The purpose of this invention is to offer the image recording equipment which records the image with which mat and a gloss part were intermingled.

[0009]

[Means for Solving the Problem] The above-mentioned purpose is attained in the image recording equipment which outputs a mat image to the detail paper according to the inputted image data by having formed a means to output a correspondence **** gloss image to said detail paper in the gloss image information contained in image data after recording said mat image.

[0010] The device control circuit which outputs the signal which the above-mentioned purpose inputs a recording-mode signal, and controls actuation of image recording equipment, The drive circuit which performs the drive of the recording paper or a record medium with the driving signal from this device control circuit, The mat record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal from image data

and this control circuit, and performing mat record, The gloss record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal and the address from said image data and said control circuit, and performing gloss record, The data selector which chooses the impression energy signal from said mat record energy decision circuit or said gloss record energy decision circuit with the mode selection signal from said control circuit chosen by the class of said record medium, It is attained by having had the impression energy control circuit which inputs this impression energy signal and outputs impression energy, and the head which consists of two or more components constituted in the shape of [which uses said record medium for said recording paper by this impression energy, and is recorded] Rhine.

[0011] The device control circuit which outputs the signal which the above-mentioned purpose inputs a recording-mode signal, and controls actuation of image recording equipment, The drive circuit which performs the drive of the recording paper or a record medium with the driving signal from this device control circuit, The mat record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal from image data and this control circuit, and performing mat record, The gloss record energy decision circuit which outputs the impression energy signal when inputting the chrominance signal and the address from said image data and said control circuit, and performing gloss record, The data selector which chooses the impression energy signal from said mat record energy decision circuit or said gloss record energy decision circuit with the mode selection signal from said control circuit chosen by the class of said record medium, The impression energy control circuit which inputs this impression energy signal and outputs impression energy, It has the head which consists of two or more components constituted in the shape of [which uses said record medium for said recording paper by this impression energy, and is recorded] Rhine. Some or all of said record medium fuses with heating, and an imprint side is smooth and it is attained by being the band material which carries out this ink maintenance with the colorlessness or white transparence ink which consists of a solid-state-like component which has gloss.

[0012] The above-mentioned purpose is attained by offering the ink film for thermal ink transfer printing which applied to one continuous film the ink of a class in which plurality differed in the sequential transit direction. The above-mentioned purpose inputs or creates the image data which consists of what added color information to concentration information, brightness information, or said information, and it edits and it is attained in various image processings and the image processing system outputted to an image display device or image recording equipment by having the means which carries out an image processing including gloss image information as said a part of image data in addition to said various information.

[0013]
[Function] Since gloss will be added to the location of arbitration corresponding to the gloss information included in image data after recording a mat image if it depends on the above-mentioned configuration, the image with which mat and gloss were intermingled is obtained by the whole by uniform image quality. That is, by choosing the signal output which defines the impression energy corresponding to the chrominance signal from image data and a control circuit inputted from the melting analog impression energy decision circuit by the data selector, inputting into an impression energy control circuit, and controlling the energy for impression of a thermal head by the inputted recording-mode signal, a control circuit performs record in melting analog ink, and obtains a mat image. Next, with the inputted recording-mode signal, a mode selection signal is changed, and the signal output which defines the impression energy corresponding to the address is chosen from the image data and the chrominance signal from a control circuit into which the melting binary impression energy decision circuit was inputted, and a control circuit, it records in white or transparent and colorless melting binary ink, and gloss is alternatively added to the part of arbitration.

[0014] Moreover, the complicatedness which exchanges an ink film and an ink film cassette is solved that what is necessary is just to switch a digital disposal circuit with the type of ink also when performing thermal-ink-transfer-printing record in the same record paper using the ink of the type with which plurality differed, since coating of the ink of the type with which plurality differed has been carried out to one continuous ink film one by one. Furthermore, by including gloss information in image data, processing of addition of gloss information, modification, etc. can be performed with an image processing system, and the image output in which mat and gloss were intermingled is obtained.

[0015]

[Example] Hereafter, drawing explains one example of this invention.

[0016] Drawing 1 is the block diagram showing the configuration of the thermal-ink-transfer-printing recording apparatus in this example. In this Fig., the device control circuit where 1 controls actuation of the whole equipment, and 2 with the signal of the device control circuit 1 The melting binary impression energy decision circuit which determines impression energy in case the equipment drive circuit which performs the drive of the recording paper or

an ink film, and 3 record using melting binary ink, The melting analog impression energy decision circuit which determines impression energy in case 4 records using melting analog ink, The impression energy control circuit which controls the data selector to which 5 changes the impression energy for melting binary ink and the impression energy for melting analog ink, and the power which impresses 6 to each heater element of a thermal head 7, and 7 are thermal heads which consist of two or more heater elements constituted in the shape of Rhine.

[0017] The recording-mode signal inputted into the device control circuit 1 is a signal for changing recording modes, such as melting binary mode, melting analog mode, melting binary / melting analog mixture mode, and gloss / mat mode. In the device control circuit 1, a sequence is changed according to a recording-mode signal, and while sending a command signal to the equipment drive circuit 2 according to said sequence and controlling the drive of equipment, a color signal and a mode selection signal are changed.

[0018] In the melting binary impression energy decision circuit 3, by image data, the color signal outputted from the device control circuit 1 and the dot address, and the Rhine address, pattern expansion is carried out, and an impression energy signal is determined and outputted.

[0019] In the melting analog impression energy decision circuit 4, an impression energy signal is determined and outputted from image data and a color signal.

[0020] In a data selector 5, with the mode selection signal outputted from the device control circuit 1, either the output of the melting binary impression energy decision circuit 3 or the output of the melting analog impression energy decision circuit 4 is chosen, and it inputs into the impression energy control circuit 6.

[0021] The impression energy signal chosen by the data selector 5 is inputted, and the impression energy control circuit 6 controls the power which is the impression energy impressed to each heater element of a thermal head 7 according to the value.

[0022] Drawing 2 is the explanatory view showing the configuration of the ink film used by this example.

[0023] 8-1 to 8-4 is a marker for detecting the head of the ink of each color, and patterns, such as a location and die length, change with the colors and types of ink. 9-1 to 9-3 is melting analog type ink, and, as for yellow (Y) and 9-2, 9-1 is [a Magenta (M) and 9-3] cyanogen (C). Although 10 is ink of a glossy melting binary type, a coloring agent is not added as a presentation, but it is only a binder, and a color tone is the thing of colorlessness or white transparency (T). the sequence of the color of ink -- 9-1, 9-2, and 9- it is 3 and 10 and record is performed in order of Y, M, C, and T. Thus, this ink film is what carried out sequential spreading of the ink of two kinds of different types, melting binary ink and melting analog ink, on one continuous ink film.

[0024] Gloss can be alternatively added to a part or the whole of an image by using the ink film of drawing 2 for the bottom of a configuration like drawing 1 , and recording transparent colorless or white melting binary ink in piles first on the mat image which recorded in melting analog ink and was obtained.

[0025] Concrete explanation of an imprint is given to below.

[0026] Drawing 3 is the explanatory view showing the copy in common melting analog ink. When ** mark is heated in solid form in ordinary temperature, it is a binder which becomes liquefied, and - mark is pigment ink which is a coloring agent.

[0027] The binder heated by sticking by pressure of a thermal head is fused, permeates the capillary tube of resin with pigment ink, and permeates the osmosis layer of the recording paper. Since the amount of ink which permeates the recording paper according to the amount of heating energy changes gently-sloping, imprint concentration is controllable by the energy impressed to a thermal head. Moreover, a record image becomes mat with the irregularity on the front face of the recording paper.

[0028] Drawing 4 is the explanatory view showing the copy in common melting binary ink. When ** mark is heated in solid form in ordinary temperature, it is a binder which becomes liquefied, and - mark is pigment ink which is a coloring agent.

[0029] Fusing the binder heated by sticking by pressure of a thermal head, in the part which is in contact with the recording paper, the recording paper is permeated with pigment ink and the remainder adheres to a recording paper front face. Since the amount of ink imprints changes with change of the amount of heating energy steeply, control of the imprint concentration by the impression energy of a thermal head is difficult, and, generally control of binary of whether ink is imprinted or not to carry out is performed. Moreover, the imprinted ink side is smooth and it is glossy in a record image.

[0030] Drawing 5 is drawing of longitudinal section explaining the configuration of the record image in this example. When ** mark is heated in solid form in ordinary temperature, it is a binder which becomes liquefied, and - mark is pigment ink which is a coloring agent.

[0031] A mat image is first recorded in the record paper in melting analog ink. The melting binary ink of the

colorlessness by which the above-mentioned coloring agent is not contained in the part to add gloss in this record image, or white transparency is imprinted. Only gloss is added while the concentration and the color of an image which the field which imprinted melting binary ink was glossy, and were recorded in melting analog ink since ink was transparent had been maintained.

[0032] Drawing 6 is the block diagram showing the configuration of the image data correction circuit in consideration of gloss information. The case where concentration and a hue change a little depending on the component of melting binary ink can be considered. In such a case, change of concentration or a hue is corrected by performing the color correction and concentration amendment which include gloss information with this Fig. Moreover, when adding gloss information to image data, you may make it replace with the data which amended the color gap and concentration change by adding gloss.

[0033] Generally, by the color printer, in order to prevent the color gap by the color mixture of ink etc., color correction by the matrix operation which used the mask of 3x3 or 3x10 is performed. Then, the correction factor at the time of adding gloss is prepared independently, and a correction factor is changed using gloss information. In concentration amendment, gloss and two kinds of mat correction factors are prepared similarly, and it changes them.

[0034] Drawing 7 shows the timing chart at the time of each mode record.

[0035] The modes shown in this Fig. are melting binary mode, melting analog mode, melting binary / melting analog mixture mode, and gloss / mat mode. A color signal is 2 bits, in Y ink and '01', M ink and '10' show C ink, and '11' shows ['00'] record in T ink here. Moreover, record in melting binary ink is shown at the time of '0', and a mode selection signal shows record in melting analog ink at the time of '1'. Therefore, the record in the melting binary ink using the ink film which applied the ink of a type which is different on one continuous film, and the record in melting analog ink can be easily changed with a mode selection signal.

[0036] Drawing 8 is the explanatory view showing the configuration of the ink film used when recording melting binary / melting analog mixture mode. 11-1 to 11-6 is a mark which detects the head of ink film each color, and die length differs from the location for every type of ink, or color. 9-1 to 9-3 is melting analog ink, 12-1 to 12-3 is melting binary ink, and, as for yellow (Y), 9-2, and 12-2, 9-1 and 12-1 are [a Magenta (M), 9-3, and 12-3] cyanogen (C) ink. It records in order of Y, M and C of melting analog ink, and Y, M and C of melting binary ink. The reverse is impossible although it is possible to record this in piles in melting binary ink on the image recorded in melting analog ink. Therefore, if record of the melting binary and a melting analog does not lap, the sequence of an ink film and the sequence of record are arbitrary. In the example shown in drawing 8, since two kinds of ink, a melting analog and the melting binary, is applied to one film, the gloss in melting binary ink and the high-definition image in melting analog ink are recordable without exchange of an ink film and an ink cassette in the same record paper.

[0037] Since impression energy concentration properties differ in each color, an ink film has a concentration amendment curve for every ink color. In the melting binary impression energy decision circuit 3 and the melting analog impression energy decision circuit 4, with the color signal from the equipment arithmetic circuit 1, a concentration amendment curve is changed and impression energy is determined.

[0038] Moreover, as mentioned above, record in melting binary ink is binary [of whether it imprints or not to carry out], and gradation expresses it with the area gradation by the set of a dot fundamentally. That is, the number and pattern of a record dot in a certain fixed area are changed for every gradation. Therefore, in a melting binary impression energy decision circuit, gradation data are developed to a dot pattern with the dot address and the Rhine address which are outputted from the equipment arithmetic circuit 1.

[0039] Drawing 9 is the explanatory view showing the dot pattern for a general gradation expression.

[0040] This Fig. shows an example of the dot pattern in the case of performing a gradation expression by 8x8 dots. Here, the part of hatching is a record dot and a white part is a non-recording dot.

[0041] Dot patterns differ for every gradation and a record dot or a non-recording dot is determined by the combination of the pattern and dot address, and the Rhine address. In order to use a dot pattern repeatedly, as for a dot address and the Rhine address, a low order triplet is used in the example of drawing 9.

[0042] Drawing 10 is the explanatory view showing the example of a gloss pattern.

[0043] Also when imprinting transparency ink and adding gloss, it is possible by making it a pattern as used such pattern expansion, for example, shown in this Fig. to change the gloss section to add.

[0044] although melting analog ink and melting binary transparency ink are constituted from an above-mentioned example on one ink film, if it is alike by two thermal heads, respectively, it equips with melting analog ink and melting binary transparency ink and it records separately, the complicatedness which exchanges an ink film will be canceled.

[0045] By the way, the conventional image processing system can deal with gloss information now. Therefore, in

order to output gloss and a mat mixture image, the image processing system which generates image data including gloss information, processes, and is outputted is needed with above image recording equipment. Furthermore, the image processing system which can process the texture information containing other texture, such as a rough deposit and irregularity, is desirable.

[0046] Drawing 11 is the explanatory view showing the configuration of image data including texture information. for example, R, G, and B -- as shown in this Fig., it adds each 8 bits of texture information to 8-bit data, and an image processing system is constituted so that 32-bit data can be dealt with as image data. Texture information is set up, when generating image data, or after reading image data with a scanner etc. In the case of image output units which cannot express texture, such as a display and conventional image recording equipment, only R, G, and B24 bit data are outputted. The image data of R, G, and B which are outputted from an image processing system is changed into the image data of Y, M, and C in an image output unit, and an image is recorded on the recording paper in each color ink of Y, M, and C.

[0047] Drawing 12 is the explanatory view showing other configurations of image data including texture information. As shown in this Fig., 1 bit of low order of R, G, and B eight bit data each is assigned to texture information. Then, when outputting to the image output unit which cannot express texture, there is little effect. Moreover, in such a case, it may fix to 0 or 1 and the data of texture information may be outputted.

[0048] Drawing 13 is the explanatory view showing the recording mechanism of a general ink jet recording method. - The mark is ink.

[0049] With the pressure applied from the outside, ink jet record makes ink inject as an ink droplet from a thin nozzle, is made to adhere to the recording paper, and forms an image. Since water color ink is generally used and the great portion of the great portion of [all or] permeates the recording paper, a record image becomes mat with the irregularity on the front face of the recording paper.

[0050] Drawing 14 is the explanatory view showing the recording mechanism of a general solid ink jet recording method. When ** mark is a solid-state and is heated in ordinary temperature, it is the binder which becomes liquefied and - mark is a coloring agent.

[0051] Heating fusion is carried out, solid ink is injected as an ink droplet and solid ink jet record makes it adhere from a nozzle. Ink hardly permeates the recording paper but it remains in the record paper, and an ink front face is smooth and has gloss. Therefore, if ink is made [colorless or white] transparent, it can be used as gloss ink. However, with surface tension, since ink becomes semi-sphere-like, it becomes different gloss from a thermal-ink-transfer-printing recording method.

[0052] Drawing 15 is the perspective view showing the configuration of the image recording equipment by the ink jet recording method in other examples of this invention. In this Fig. 13 Yellow (Y), a Magenta (M), cyanogen (C), The ink jet head for colors which consists of a head of four colors of black (Bk), The color ink tank which 14 separates the ink of Y, M, C, and Bk each color, and is saved, The ink jet head for gloss on which 15 records the gloss ink of colorlessness or white transparence, As for a platen and T9, the gloss ink tank by which 16 saves gloss ink, the ink supply tube with which 17 supplies ink to an ink jet head from an ink tank, and 18 are [the detail paper and 20] the guides of an ink jet head.

[0053] Each color head of the ink jet head 13 for colors is the thing of the multi-nozzle type with which two or more nozzles have been arranged in the shape of Rhine, respectively, and since it is putting each color head in order along with the head guide 20, it can perform color record of fixed width of face (one line) by one scan. If record of one line is completed, record of delivery and the next line will be performed for the recording paper by one line. Such a writing scan of one line and paper feed are repeated, and one screen is recorded. The ink jet head 13 for colors and the ink jet head 15 for gloss may be driven synchronously, and may be driven separately. Moreover, these are summarized, and it is good also as one head block, and you may arrange in one train. Furthermore, although the ink jet head was made into the multi-nozzle type thing, one type is sufficient as a nozzle, and the thing of the Rhine type which can record a part for paper width at a time is sufficient as this.

[0054] Similarly, it is a multi-nozzle type thing, and the ink jet head 15 for gloss also records in the gloss ink of colorlessness or white transparence on the mat image recorded with the ink jet head 13 for colors, and adds gloss to the part of arbitration alternatively.

[0055] Not only with the solid ink of said solid ink jet record but with heat or a solvent, it is made a liquid, and injects and records from a nozzle, and the recording paper is seldom permeated at the time of record, but the ink front face after record is smooth in the gloss ink used in the above-mentioned example, and the solid-state-like matter of the colorlessness which has gloss, or white transparence is used for it. Surface tension is small, and the direction which is not solidified or dried immediately does not become unevenness, but tends to express gloss. Moreover, as for the ink

jet head 15 for gloss, and the gloss ink tank 16, approaching and arranging is desirable, in order to use ink as a liquid and to supply it to the ink jet head 15 for gloss with heating melting or a solvent.

[0056] By the way, in the 1st example of the above, although the 2nd example of the above described the case where a color picture was recorded, in the ink of four colors of Y, M, C, and Bk in the ink of three colors of Y, M, and C, this invention is not limited to such a color picture, but also when recording in the ink of monochrome or two colors, it can be applied.

[0057] Moreover, the gloss addition means by ink jet record of the 2nd example of the above may be combined with the mat image recording equipment by the thermal-ink-transfer-printing record using the melting analog ink of the 1st example of the above, and you may make it add gloss to the mat image by ink jet record by thermal-ink-transfer-printing record conversely.

[0058] According to the above-mentioned example, the image with which there is no complicatedness which exchanges an ink film and an ink cassette, and gloss and mat were intermingled can be outputted with one image recording equipment.

[0059]

[Effect of the Invention] According to this invention, since gloss can be added in gloss ink after record of a mat image, the image with which gloss and mat were intermingled by fixed image quality can be obtained.

[0060] Moreover, the thermal-ink-transfer-printing record image of the ink of a different type in the same record paper is obtained, without exchanging an ink film and an ink film cassette, since the ink of a different type is applied to one continuous ink film.

[0061] Since gloss information is included in image data, generation of the image with which gloss and mat were intermingled, processing, and an output can be performed with image data processing system.

[Translation done.]

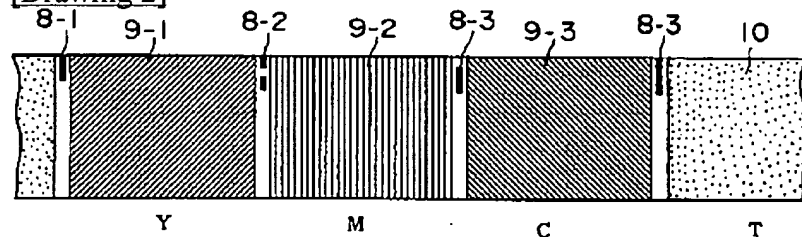
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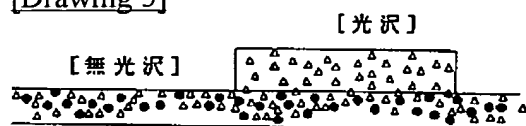
DRAWINGS

[Drawing 2]



- | | | | |
|-----|------|-----|---------------|
| 8-1 | マーカー | 9-1 | 熔融アナログインク (Y) |
| 8-2 | マーカー | 9-2 | 熔融アナログインク (M) |
| 8-3 | マーカー | 9-3 | 熔融アナログインク (C) |
| 8-4 | マーカー | 10 | 熔融2値透明インク |

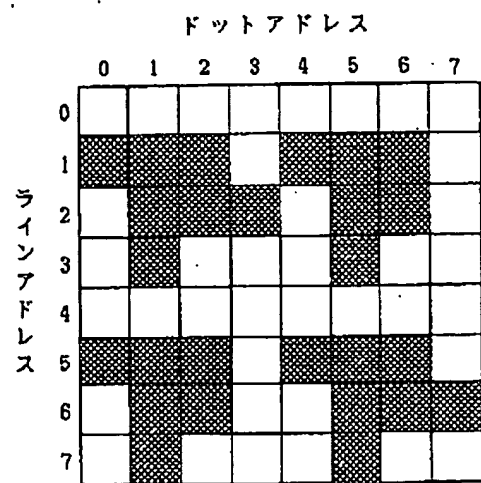
[Drawing 5]



- 顔料インク
- バインダ

記録紙

[Drawing 9]

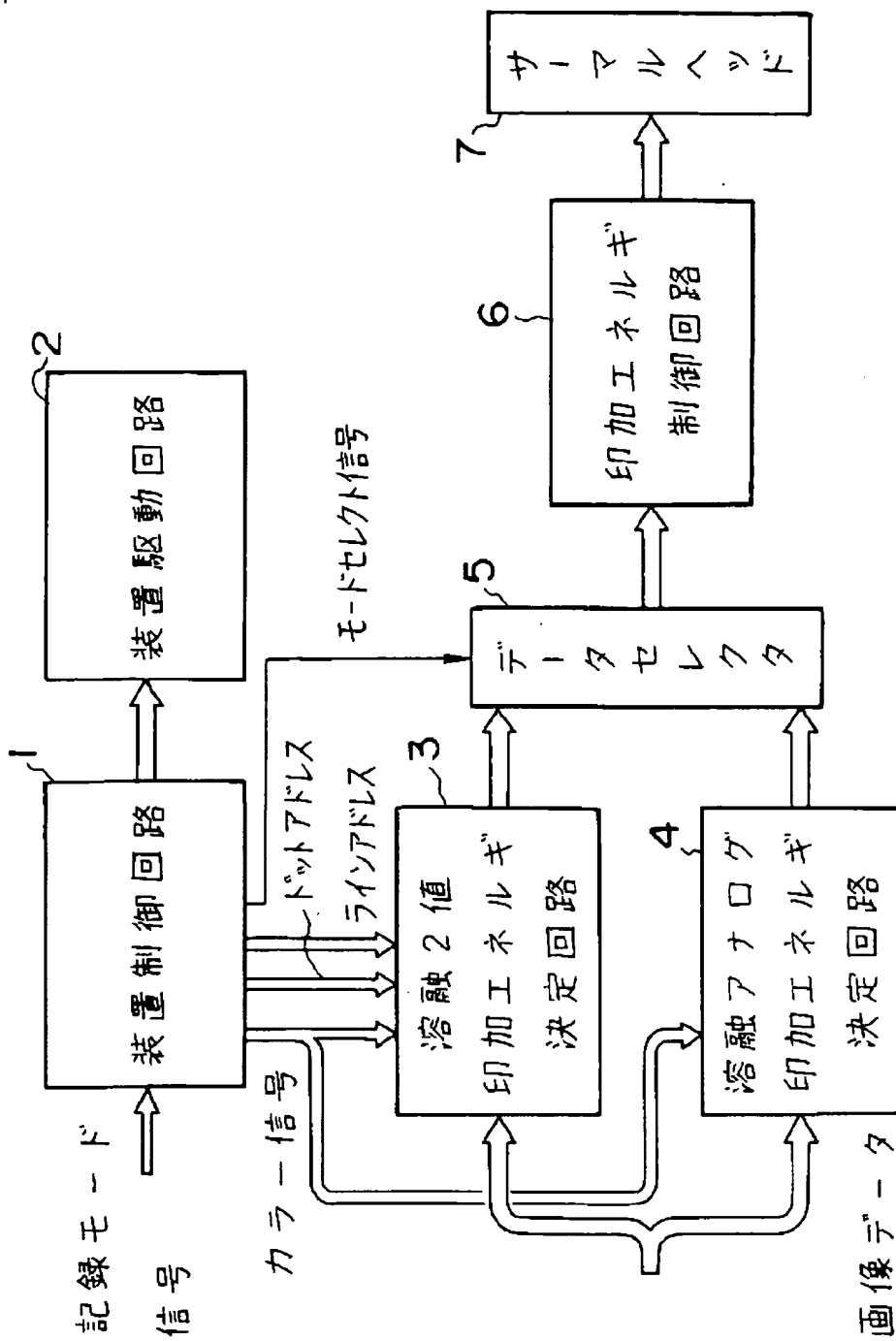


記録ドット

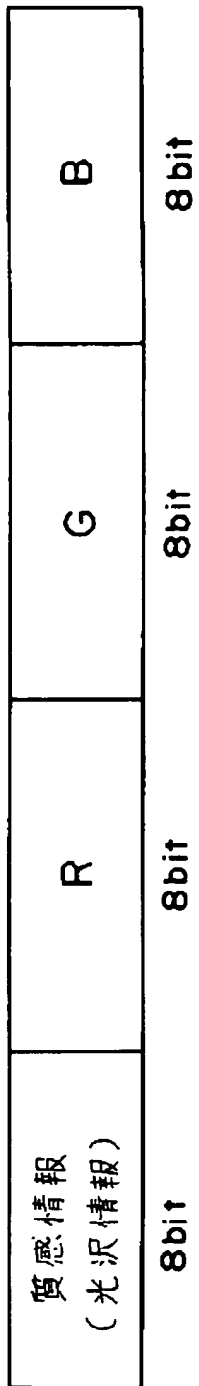


非記録ドット

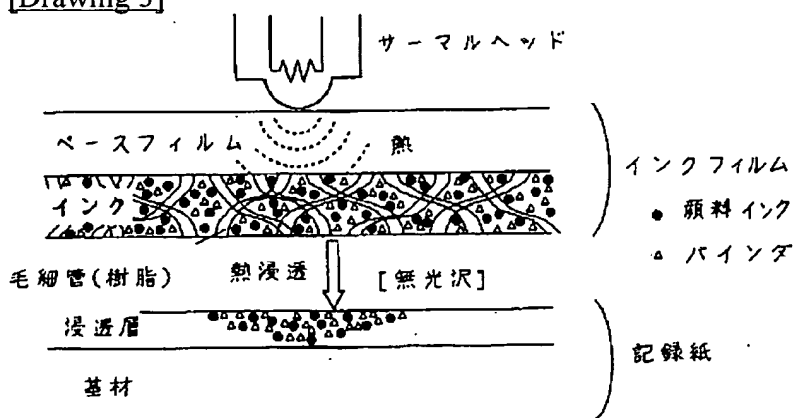
[Drawing 1]



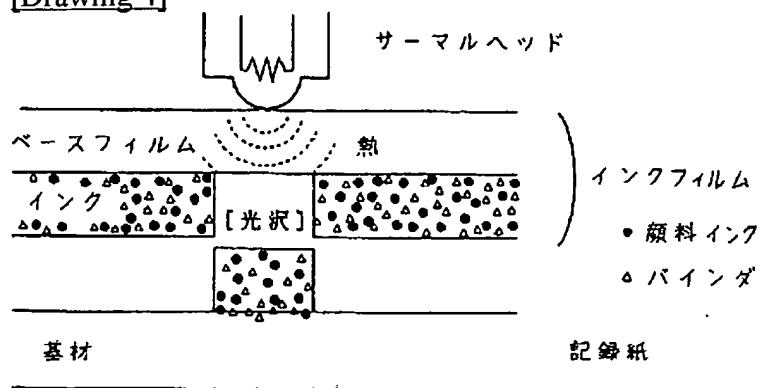
[Drawing 11]



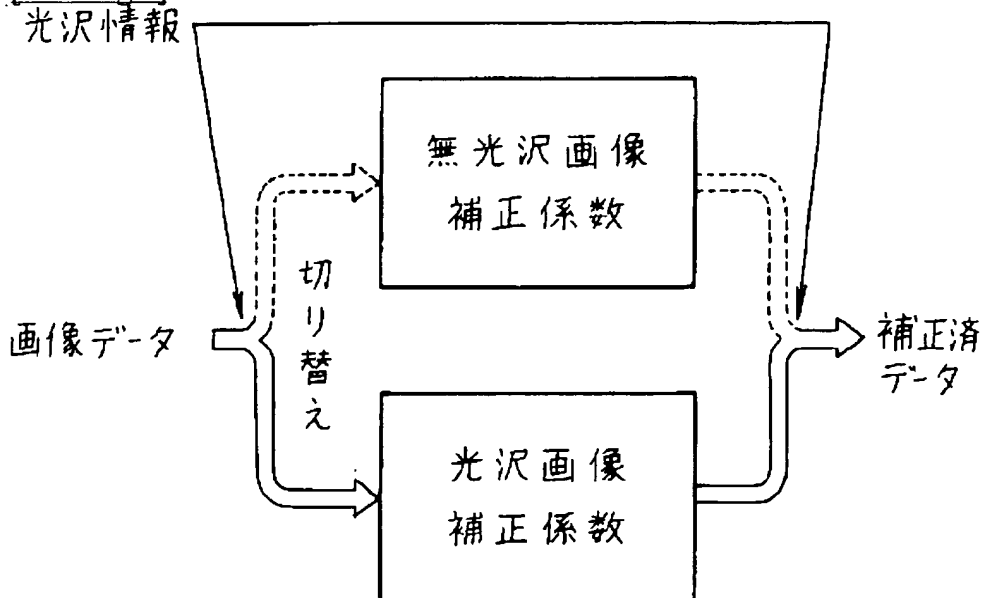
[Drawing 3]



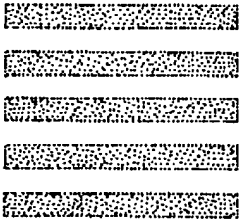
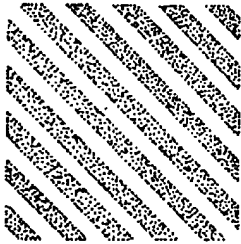
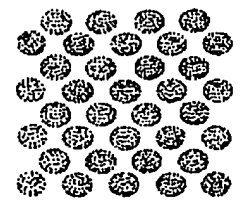
[Drawing 4]



[Drawing 6]



[Drawing 10]



[Drawing 7]

溶融2値モード

カラー信号

モードセレクト信号

00	01	10
0	0	0
Y	M	C

溶融2値

溶融アナログモード

カラー信号

モードセレクト信号

00	01	10
1	1	1
Y	M	C

溶融アナログ

溶融2値/溶融アナログ混在モード

カラー信号

モードセレクト信号

00	01	10	00	01	10
1	1	1	0	0	0
Y	M	C	Y	M	C

溶融アナログ 溶融2値

光沢/無光沢モード

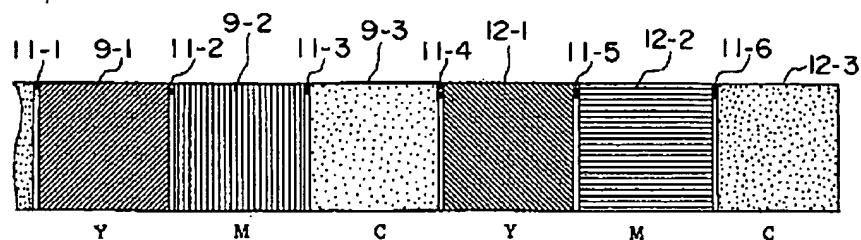
カラー信号

モードセレクト信号

00	01	10	11
1	1	1	0
Y	M	C	T

溶融アナログ 溶融2値

[Drawing 8]



溶融アロケインク

溶融2値インク

11-1 マーカ- 11-6 マーカ-

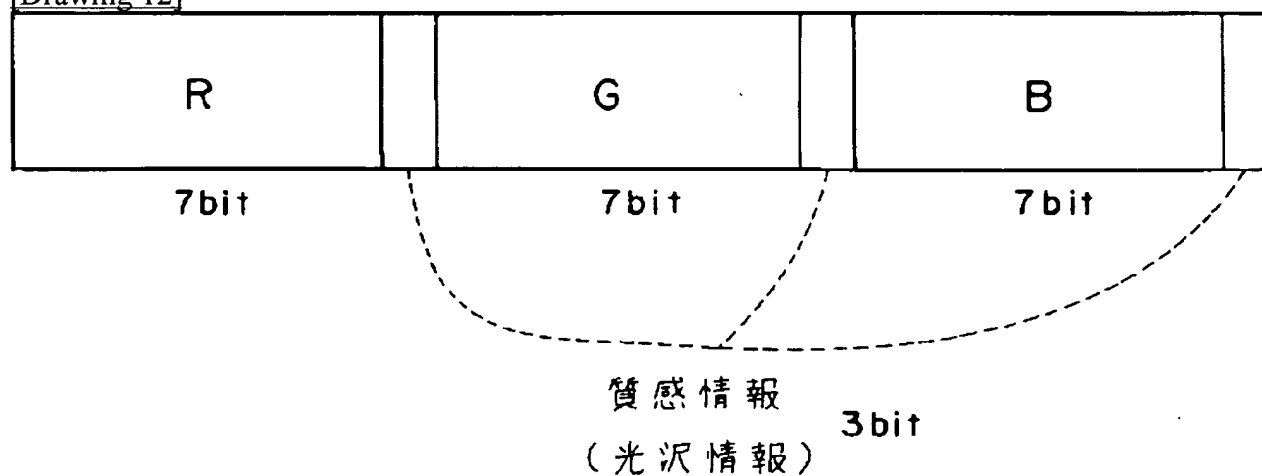
11-2 マーカー 12-1 溶融2値インク (Y)

11-3 マーカー 12-2 溶融2値インク (M)

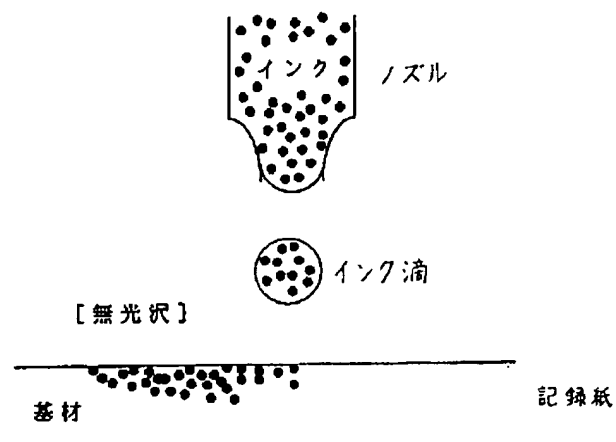
11-4 マーカー 12-3 溶融2値インク (C)

11-5 マーカ-

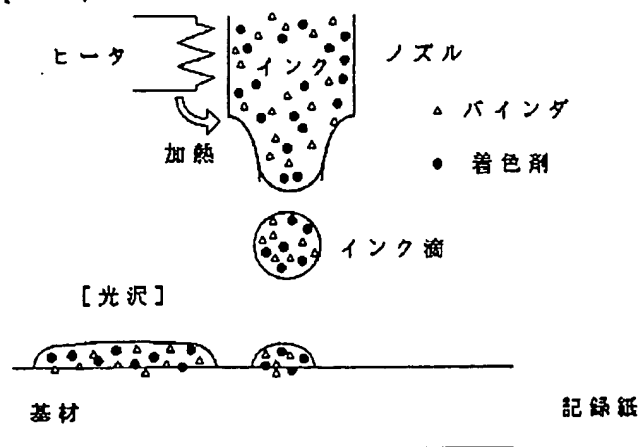
[Drawing 12]



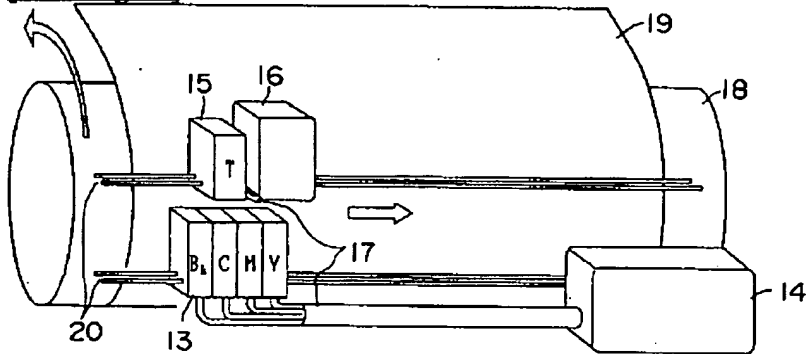
[Drawing 13]



[Drawing 14]



[Drawing 15]



13 カラー用インクジェットヘッド

15 光沢用インクジェットヘッド

[Translation done.]